RE-CONFIGURABLE PASSENGER BENCH SEAT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of and claims priority to PCT/EP2014/053075 filed Feb. 18, 2014 which claims the benefit of and priority to U.S. Provisional Application No. 61/766,136, filed Feb. 19, 2013 and German Patent Application No. 10 2013 002 887.6 filed Feb. 19, 2013, the entire disclosures of which are all incorporated by reference herein.

TECHNICAL FIELD

[0002] The disclosure herein relates to a passenger bench seat which is suitable for use in the passenger cabin of an aircraft, but also for use in other means of transport, such as buses or trains for example.

BACKGROUND

[0003] In modern means of transport, particularly in aircraft, optimum utilization of the space available in a passenger cabin is of major economic importance. The cabin layout, particularly the layout of the passenger seats arranged in the passenger cabin, such as the allocation of a row of passenger seats to business class or to economy class for example, should be as flexibly, rapidly and easily re-configurable as possible. In addition, efforts are made to design the passenger cabin of a commercial aircraft in such a way that flexible adaptation of the cabin layout to the requirements of specific user groups, such as, for example, families with small children, senior citizens, people with restricted mobility, etc., is possible.

SUMMARY

[0004] An underlying object of the disclosure herein is to provide a passenger bench seat and method which is suitable for use in a means of transport, such as an aircraft for example, and which is rapidly and easily re-configurable and can therefore be particularly flexibly adapted to the requirements of the operator of the means of transport and also to the requirements of specific groups of users of the means of transport.

[0005] This object is achieved, at least in part, by a passenger bench seat having features described herein.

[0006] A passenger bench seat according to the disclosure herein comprises a backrest and also a seat element. The seat element has a seating surface which extends substantially perpendicularly to a backrest surface of the backrest. The bench seat may further comprise a carrier pedestal to which the backrest and seat element are fastened and which forms the load-bearing structure of the passenger bench seat. The carrier pedestal may be intended for fastening in a standardized seat rail which may be integrated into the floor of a passenger cabin in which the passenger bench seat is to be arranged.

[0007] The passenger bench seat further comprises a fastening rail which extends substantially parallel to a longitudinal axis of the seat element in the region of an edge of the seat element that faces towards the backrest. The fastening rail preferably extends over the entire length of the seat element, along that edge of the seat element which faces towards the backrest. The fastening rail may, for example, be of hollow-cylindrical construction and be fastened to the carrier pedestal that forms the load-bearing structure of the passenger bench seat. The fastening rail may be embodied in the form of a one-piece component. If desired, however, it is also conceivably possible to embody the fastening rail in multipart form. Parts of the fastening rail which are constructed separately from one another can then be arranged one behind another, viewed in the direction of the longitudinal axis of the seat element, and extend between carrier elements of the carrier pedestal which are positioned at a distance from one another and extend substantially perpendicularly to the longitudinal axis of the seat element and which serve to support the seat element. With the passenger bench seat designed in such a way, the parts of the fastening rail which are constructed separately from one another may each be fastened to mutually adjacent carrier elements of the carrier pedestal.

[0008] Finally, the passenger bench seat comprises a seatbelt system which comprises, in a first configuration of the passenger bench seat, a first number of seatbelts which are detachably fastened to the fastening rail in first positions which are adapted to the first configuration of the passenger bench seat. In a second configuration of the passenger bench seat, the seatbelt system comprises a second number of seatbelts which are detachably fastened to the fastening rail in second positions which are adapted to the second configuration of the passenger bench seat. The fastening rail is preferably positioned in such a way that it is not directly visible to passengers using the passenger bench seat, but is easily accessible for fastening the seatbelts belonging to the seatbelt system. For example, the fastening rail may be arranged, in a region of the passenger bench seat in which the seat element and the backrest border on one another, in a gap which is defined by the seat element and the backrest and which is concealed, when the passenger bench seat is viewed from in front, by cushions belonging to the seat element and the backrest. In this region, the seat element and backrest preferably comprise or consist of a soft cushion material which permits easy access to the fastening rail.

[0009] The seatbelt system may comprise only one seatbelt, i.e. the first and second number of seatbelts may each amount to 1. With the seatbelt system designed in such a way, the seatbelt is then detachably fastened to the fastening rail at a different position in the first configuration of the passenger bench seat than in the second configuration of the passenger bench seat. Furthermore, it is conceivably possible for the seatbelt system to comprise several seatbelts, in which case the first number of seatbelts corresponds to the second number of seatbelts. Once again, the seatbelts are then detachably fastened to the fastening rail in a different position in the first configuration of the passenger bench seat than in the second configuration of the passenger bench seat. With the seatbelt system designed in such a way, the first configuration of the passenger bench seat therefore differs from the second configuration of the passenger bench seat in terms of the positioning of the seatbelts and thereby the positioning, on the passenger bench seat, of those sections of the passenger bench seat which are intended for use by individual passengers. For example, it is thereby possible to assign more or less space on the passenger bench seat to a passenger, or to vary the position, on the passenger bench seat, of a section of the passenger bench seat which is assigned to a passenger.

[0010] Finally, a design of the seatbelt system is conceivably possible in which the first number of seatbelts differs from the second number of seatbelts, i.e. the seatbelt system comprises a different number of seatbelts in the first configu-